



**Water & Wastewater Commission  
Review and Recommendation**

<b>Commission Meeting Date:</b>	October 6, 2021	<b>COA Strategic Direction:</b>	Health and Environment
<b>Council Meeting Date:</b>	October 14, 2021		
<b>Department:</b>	Austin Water		
<b>Client:</b>	Kevin Critendon		
<b>Agenda Item</b>			
Recommend approval to negotiate and execute an interlocal agreement with Northern Arizona University for research relating to the Balcones Canyonland Preserve, in an amount not to exceed \$295,000.			
<b>Amount and Source of Funding</b>			
This item has no anticipated fiscal impact.			
<b>Purchasing Language:</b>	N/A		
<b>Prior Council Action:</b>	N/A		
<b>Boards and Commission Action:</b>	October 6, 2021 — To be reviewed by the Water and Wastewater Commission.		
<b>MBE/WBE:</b>	N/A		

This action authorizes the negotiation and execution of an interlocal agreement with Northern Arizona University (NAU) to provide training and conduct research to support the protection and management of the Balcones Canyonlands Preserve (BCP). NAU will train Austin Water BCP staff and volunteers to participate in research on key soil biota (mycorrhizal fungi). This research will enable Austin Water's BCP staff to develop management programs that support healthy soils, which are key to protecting the native plant communities and the species that depend on them, thereby ensuring the environmental integrity of the Balcones Canyonlands Preserve.

The Balcones Canyonlands Preserve was established in 1996 under a federal Endangered Species Act permit to provide mitigation for development and protect endangered and rare species and their habitats, including the Golden-cheeked Warbler, karst invertebrates, and rare plants. The scope of this project entails applied research to support translating basic soil/mycorrhizal science into specific management actions, developing volunteer-driven programs to support ongoing adaptive management, working with local scientists, and collaborating with international experts on mycorrhizal eco-hydrology and ecology.

Mycorrhizal fungi serve as extensions of plant roots, transporting water and nutrients through the soil and sequestering carbon derived from photosynthesis. They provide diverse ecosystem services that support land management goals including: 1) improving plant survival, growth, and water relations in the face of multiple stressors (i.e., climate change, fire risks, oak wilt), 2) decreasing erosion and increasing soil moisture and water quality (protecting public and private drinking water), and 3) increasing plant health and resilience, known to improve plant resistance to pathogens. These mycorrhizal communities are often impacted by a variety of habitat alterations. Research demonstrates that appropriately tailored mycorrhizal restoration and management can return native mycorrhizal communities and boost management outcomes from the ground up. This project will integrate basic mycorrhizal research with site-specific, applied studies focused on improving habitat quality, soil moisture, water quality, and forest health and regeneration. This effort will also showcase Balcones Canyonlands Preserve as an international model for leveraging both citizen science and applied soil biology for forest management.

The Gehring Lab at Northern Arizona University is internationally recognized for its research contributions to understand the functioning of fungi in natural and managed systems. The collective experience of the principal investigators of this project includes utilizing mycorrhizae to boost habitat regeneration and respond to threats from invasive species and climate change, fire ecology and land management. They also have experience leading workshops to promote citizen science, land manager, and academic partnerships that increase mycological knowledge and application.